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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/577,006	05/22/2000	Yoshitaka Takahashi	2271/46440-B	2446

7590 02/14/2003
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EXAMINER

CHU, KIM KWOK

ART UNIT	PAPER NUMBER
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2653

DATE MAILED: 02/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/577,006

Applicant(s)

TAKAHASHI ET AL.

Examiner

Kim-Kwok CHU

Art Unit

2653

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-14 is/are allowed.
- 6) ☒ Claim(s) 1-6,8-10 and 15-28 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Reissue Applications

1. The reissue oath/declaration filed with this application is defective (see 37 CFR 1.175 and MPEP § 1414) because of the following:

- (a) Applicant does not provide his citizenship;
- (b) Applicant does not provide his post office address; and
- (c) foreign applications are not listed (a "claim" for the benefit of an earlier filing date in a foreign country under 35 U.S.C. 119(a)-(d) must be made in a reissue application).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

*A person shall be entitled to a patent unless -
(b) the invention was patented or described in a
printed publication in this or a foreign country or in
public use or on sale in this country, more than one
year prior to the date of the application for patent
in the United State..*

3. Claims 1-6 and 8-10 are rejected under 35 U.S.C. § 102(b) as being anticipated by Ando (U.S. Patent 4,804,835).

Ando teaches an optical disc apparatus having all the elements and means as recited in claims 1-6 and 8-10. For example, Ando teaches the following:

- (a) as in claim 1, a light source 11 (Fig. 11);

(b) as in claim 1, an objective lens 18 for focusing light ray flux emitted from the light source 11 on an optical recording medium 1 (Fig. 11);

(c) as in claim 1, a quarter-wave plate 15 located between the light source 11 and the optical recording medium 1 (Fig. 11);

(d) as in claim 1, a flux separating element 13 configured to separate light rays reflected on the optical recording medium 1 from an optical axis of incident light rays (Fig. 11);

(e) as in claim 1, the flux separating element 13 being formed of a birefringent material and disposed in a divergent optical path between the light source 11 and the quarter-wave plate 15 (Fig. 11; optical element 13 is made of quartz and where birefringent materials are quartz, ice and salt etc.);

(f) as in claim 1, a light-receiving element 14 positioned adjacent the light source 11 and at a front side thereof for detecting a signal from the reflection light rays (Fig. 11);

(g) as in claim 2, the light source 14 is a semiconductor laser (Fig. 11, the light source 14 is made of semiconductor);

(h) as in claim 3, an incident plain surface 19 of the flux separating element 13 is not perpendicular to the optical axis (Fig. 11);

(i) as in claim 4, the light source 11 and the light-receiving element 14 are unitarily constructed by combining both of them into one (Fig. 11);

(j) as in claim 5, a plain plate 19 made of birefringent material is employed as said flux separating element 13 (Fig. 11);

(k) as in claim 6, the flux separating element 13 is employed as a window member of the semiconductor laser 11 (Fig. 11; the light separating element 13 is an optical components forming the light exiting window 5);

(l) as in claim 8, the light source 11, the light-receiving element 14, the flux separating element 13, the quarter-wave plate 15 and the objective lens 18 are mounted unitarily to form a unitarily optical pickup portion (Fig. 11); and

(m) as in claims 9 and 10, the unitary optical pickup portion is accommodated in an actuator 81 movable portion which can be moved both in a tracking direction and in a focusing direction (Figs. 1 and 10).

4. Claims 15 and 17-20 are rejected under 35 U.S.C. § 102(b) as being anticipated by Ando (U.S. Patent 4,804,835).

Ando teaches an optical disc apparatus having all the elements and means as recited in claims 15 and 17-20. For example, Ando teaches the following:

- (a) as in claim 15, a light source 11 (Fig. 11);
- (b) as in claim 15, an objective lens 18 for focusing light ray flux emitted from the light source 11 on an optical recording medium 1 (Fig. 11);
- (c) as in claim 15, a quarter-wave plate 15 located between the light source 11 and the optical recording medium 1 (Fig. 11);
- (d) as in claim 15, a flux separating element 13 configured to separate light rays reflected on the optical recording medium 1 from an optical axis of incident light rays (Fig. 11);
- (e) as in claim 15, the flux separating element 13 being disposed in a divergent optical path between the light source 11 and the quarter-wave plate 15 (Fig. 11);
- (f) as in claim 15, a light-receiving element 14 positioned adjacent the light source 11 and at a front side thereof for detecting signal from the reflection light rays (Fig. 11);
- (g) as in claim 17, the light-emitting source 11 is at a different height from that of the light-receiving element 14 (Fig. 11);

(h) as in claim 18, the flux separating element 13 is a prism (Fig. 11);

(i) as in claim 19, the optical disc apparatus is an optical pickup (Fig. 11); and

(j) as in claim 20, an optical disc system 1-3 (Figs. 1 and 11).

5. Claims 21 and 22 are rejected under 35 U.S.C. § 102(b) as being anticipated by Ando (U.S. Patent 4,804,835).

Ando teaches an optical disc apparatus having all the elements and means as recited in claims 21 and 22. For example, Ando teaches the following:

(a) as in claim 21, a source 11 emitting light flux along an emitting direction (Fig. 11);

(b) as in claim 21, a flux separating optical element 13 having a first side that faces the source 11 and through which light flux emitted from the source 11 along the emitting direction enters (Fig. 11);

(c) as in claim 21, a second side through which the light flux exits the flux separating optical element 13 (Fig. 11);

(d) as in claim 21, a quarter-wave optical element 11 through which the light flux from light source 11 passes after having passed through the flux separating optical element 13 (Fig. 11);

(e) as in claim 21, a focusing optical element 18 focusing onto a recording medium 1 the light flux from the source 11 after having passed through the flux separating and the quarter-wave optical elements (Fig. 11);

(f) as in claim 21, the recording medium 1 reflecting the light flux focused thereon to thereby produce a reflected light flux (Fig. 11);

(g) as in claim 21, the reflected light flux passing through the focusing element 18 and the quarter-wave optical elements 15 and entering the flux separating optical element 13 through the second side thereof along an optical path that substantially coincides with a path of the light flux from the light source 11 after exiting the second side and in traveling to the recording medium 1 through the quarter-wave and focusing optical elements 13 (Fig. 11; the reflected light beam and the emitted light beam when entering the second surface of flux separating element 13 through the quarter-wave element 15 are along the same optical path);

(h) as in claim 21, a reflected light flux detector 14 facing the first side of the flux separating optical element 13 and receiving therefrom, along a detecting direction reflected light flux that has entered through the second side (Fig. 11);

(i) as in claim 21, the emitting and detecting directions being at an oblique angle to each other (Fig. 11);

(j) as in claim 21, the source and detector being spaced from each other in a direction transverse to both the emitting and the detecting directions (Fig. 11); and

(k) as in claim 22, the flux separating optical element 13 comprises a birefringent material (Fig. 11; optical element 13 is made of quartz and where birefringent materials are quartz, ice and salt etc.).

6. Method claims 25 and 26 are drawn to the method of using the corresponding apparatus claimed in claims 21 and 22. Therefore method claims 25 and 26 correspond to apparatus claims 21 and 22 are rejected for the same reasons of anticipation as used above.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ando (U.S. Patent 4,804,835) in view of Lee (U.S. Patent 5,136,152).

Ando teaches an optical pickup very similar to that of the instant invention. However, Ando does not teach the following:

(a) as in claim 16, a collimator lens located between the flux separating element and the optical recording medium.

Lee teaches an optical pickup having a collimator lens 850 located between the flux separating element 840 and an optical recording medium 880 (Fig. 8).

A light beam should be parallel before it is focused by an objective lens. Therefore, to guide the light beam towards the objective lens, it would have been obvious to one of the ordinary skill in the art to position a collimator lens such as Lee's in

Ando's optical head between a light separating means and a recording medium, because the collimator can convert any divergent light beam exited from the light separating means into a collimated beam so that it can be equally focused.

9. Claims 23 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ando (U.S. Patent 4,804,835) in view of Kuwayama et al. (U.S. Patent 4,626,679).

Ando teaches an optical pickup very similar to that of the instant invention. However, Ando does not teach the following:

(a) as in claims 23 and 27, the flux separating optical element comprises a Wallaston/Wollaston prism; and

Kuwayama teaches an optical head having a Wollaston prism 139 (fig. 13).

A Wollaston prism can splits a reflected light beam into two polarized light beams. Hence, for separating a reflected light beam into two polarized light beams, it would have been obvious to one of ordinary skill in the art at the time of invention to use a Wollaston prism such as Kuwayama's in Ando's optical pickup, because the reflected light beams is divided into two polarized components so that servo signals and recorded signals can be generated.

10. Claims 24 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ando (U.S. Patent 4,804,835) in view of Ishii et al. (U.S. Patent 4,125,860).

Ando teaches an optical pickup very similar to that of the instant invention. However, Ando does not teach the following:

(a) as in claims 24 and 28, the light flux from the source to pass through a flux separating optical element comprises a Rochon prism.

Ishii teaches that a Rochon prism and Wollaston prism perform the same function (column 13, lines 5 and 6).

A Rochon prism and a Wollaston prism have the same light separating function, it would have been obvious to one of ordinary skill in the art at the time of invention to switch from using a Wollaston prism to a Rochon prism such as Ishii's, because it is an alternate choice of optical components with equivalent optical property.

ALLOWANCE Subject Matter

11. Claims 11-14 are allowable over the prior art of record.

12. Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. The following is an Examiner's Statement of Reasons for Allowance based on applicant's amendment filed on July 16, 1997:

As in claim 7, the prior art of record fails to teach or fairly suggest an optical pickup having two pieces of prism consisting of same sort of uniaxial crystal respectively having optical axes intersecting perpendicularly to each other are employed as a flux separating element, such that when a refractive index for ordinary light rays of the prism n_o is larger than a refractive index for extraordinary light rays n_e , an incident angle of the ordinary light rays transmitted through the first prism to the second prism is δ , and a counterclockwise angle from the optical axis of the ordinary light rays is in a plus (+) direction when the value of δ becomes larger than zero, and such that when n_o is larger than n_e , an incident angle of the extraordinary light rays

transmitted through the first prism to the second prism is δ , and a counterclockwise angle from the optical axis of the extraordinary light rays is in a plus (+) direction when the value of δ becomes smaller than zero ($\delta < 0$).

As in claim 11, the prior art of record fails to teach or fairly suggest an optical pickup having a semiconductor laser and at least one light-receiving element formed in a single stem. In addition, the optical pickup has an uniaxial crystal plate with a discontinuous surface disposed in an optical path between the semiconductor and an objective lens.

The features indicated above, in combination with the other elements of the claims, are not anticipated by, nor made obvious over, the prior art of record.

Prior Art

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Takagi (5,062,096) is pertinent because Takagi teaches an optical pickup having a quarter-wave plate and an objective lens functioning as a collimating device.

Tsukai (4,624,526) is pertinent because Tsukai teaches an optical pickup having a quarter-wave plate and a light reflecting prism.

15. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks Washington, D.C.
20231 Or faxed to:

(703) 872-9314 (for formal communications intended for
entry. Or:

(703) 746-6909, (for informal or draft communications,
please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park
II, 2021 Crystal Drive, Arlington. VA., Sixth Floor
(Receptionist).

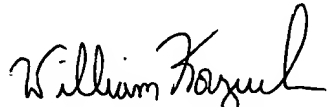
Any inquiry of a general nature or relating to the status of
this application should be directed to the Group receptionist
whose telephone number is (703) 305-4700.

Any inquiry concerning this communication or earlier
communications from the examiner should be directed to Kim CHU
whose telephone number is (703) 305-3032 between 9:30 am to 6:00
pm, Monday to Friday.

kc 2/10/03

Kim-kwok CHU

Examiner AU2653
February 10, 2003
(703) 305-3032


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